



**UNIVERSITY OF JAFFNA, SRI LANKA**  
**FACULTY OF ALLIED HEALTH SCIENCES**  
**FIRST YEAR SECOND SEMESTER EXAMINATION IN BScHons (MLS)-2021**

**MLSBS 1231 BASIC STATISTICS**

**Date: 14.06.2023**

**Time: 2 hours**

**ANSWER ALL QUESTIONS.**

**1.**

1.1 A study conducted at a Jaffna University revealed that students who attended class 90 to 100% of the time usually received an A in the class. Students who attended class 80 to 90% of the time usually received a B or C in the class. Students who attended class less than 80% of the time usually received a D or an F or eventually withdrew from the class.

- 1.1.1 What are the variables under study? (05 Marks)
- 1.1.2 What are the data in the study? (05 Marks)
- 1.1.3 Are descriptive, inferential, or both types of statistics used? (05 Marks)
- 1.1.4 What is the population under study? (05 Marks)
- 1.1.5 Was a sample collected? If so, from where? (05 Marks)
- 1.1.6 From the information given, comment on the relationship between the variables. (05 Marks)

1.2 The body weight (kg) of 20 pregnant mothers attending to an antenatal clinic were reported as follows.

55 60 62 65 70 85 60 70 56 63 65 60 60 59 72 80 62 70 82 62

- 1.2.1 Arrange above observations in ascending order. (05 Marks)
- 1.2.2 Construct class intervals (05 Marks)
- 1.2.3 Construct histogram (05 Marks)
- 1.2.4 Construct frequency polygon. (05 Marks)

1.3 Time taken for a pain killer drug to relieve pain of 50 cancer patients is given in the table below.

Time taken to relieve pain	1 -10	11 - 20	21 - 30	31 - 40	41 - 50
Frequency	8	14	12	9	7

Find the

- 1.3.1 Mean (10 Marks)
- 1.3.2 Median (10 Marks)
- 1.3.3 Mode (10 Marks)
- 1.3.4 Standard deviation (10 Marks)
- 1.3.5 Measures of skewness (05 Marks)
- 1.3.6 Coefficient of variation, of the above data. (05 Marks)

2.

2.1 A survey indicated that the out of 250 patients interviewed. 107 prefer Panadol and 83 prefer Disprin and around 52 prefer both Panadol and Disprin .

- 2.1.1 Compute the probability that randomly chosen patients will prefer at least one of the tablets Panadol or Disprin. (10 Marks)
- 2.1.2 What is the probability that a randomly chosen patient does not prefer any of the tablets Panadol or Disprin. (10 Marks)

2.2 The "RAT" test is used to test whether or not a person has COVID-19. The test is not perfect; there is a 30% chance that a person who has COVID-19 is falsely tested negative and a 15% chance a person who does not have COVID-19 is falsely tested positive. If the COVID-19 is infected among 60% of the tested population. A person is selected at random from the population and given the test. If the result is negative, what is the probability that this person has COVID-19? (30 Marks)



2.3 Assume that the mean systolic blood pressure of normal adults is 120 millimeters of mercury (mm Hg) and the standard deviation is 5.6. Assume the variable is normally distributed.

2.3.1 If an individual is selected, find the probability that the individual's pressure will be between 120 and 121.8 mm Hg. (20 Marks)

2.3.2 If a sample of 30 adults is randomly selected, find the probability that the sample mean will be between 120 and 121.8 mm Hg. (20 Marks)

2.3.3 Why is the answer to part (i) so much smaller than the answer to part (ii)? (10 Marks)